WHAT I CLAIMED IS:

~~Patent Claims~~

1. A method for transmitting messages, the messages $\underline{m}=(m_0, m_1,...,m_{L-1})$ being coded by orthogonal functions to form a signal (s(t)), characterized in that approximations of Hermite functions are used as orthogonal functions.

2. The method as recited in Claim 1,
characterized in that the received signal is subjected to a Fourier transform and subsequently decoded with the aid of the Hermite functions in order to obtain the messages.

3. The method as recited in Claim 2,
characterized in that the received signal is filtered, preferably low-pass filtered, before and/or after the Fourier transform.

4. The method as recited in one of the preceding claims,
characterized in that the received signal is decoded both in the time domain and in the frequency domain.

5. The method as recited in Claim 4,
characterized in that each component m_j is decoded both in the time domain and in the frequency domain, ~~and~~ in that after the results are obtained, a discriminator is used to select the respective best received value along the lines of a suitable metric.

6. The method as recited in Claim 5,
characterized in that the discriminator selects the m_j as a function of all $\hat{m}_j$ with the aid of a suitable criterion.

7. The method as recited in one of the preceding claims,
characterized in that the signal is transformed

by modulation into higher frequency domains.

8. The method as recited in Claim 5 or 6,
characterized in that the Euclidian metric is used to determine the best signal to be selected.

9. A circuit arrangement for transmitting messages, a number of L components ($m_0 ... m_{L-1}$) being coded by orthogonal functions to form a signal,
characterized in that provision is made on the transmitting side for a coding device (3) which codes the messages (m) by approximated Hermite functions, and in that provision is made on the receiving side for a demodulation device (7) which recovers the messages from the received signal (r(t)) with the aid of the approximated Hermite functions.

10. The circuit arrangement as recited in Claim 9, characterized in that the demodulation device (7) has a number L of multipliers (15), integrators (17) and discriminators (19) which corresponds to the number of the components, one modulator, one integrator and one discriminator, respectively, being connected in series to form a decoder unit (13).

11. The circuit arrangement as recited in Claim 9 or 10, characterized in that a Fourier-transform device
(21) is provided which subjects the received signal
(r(t)) to a Fourier transform and feeds it to the decoder units (13).

12. The circuit arrangement as recited in one of Claims
9 through 11,
characterized in that each decoder unit (13) is provided in duplicate, one decoder unit decoding the signal in the time domain, and the respective other decoder unit decoding the signal in the frequency domain.